

THE
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TRANSLATIONS.

Pathogenests.

Are Typhus, Cholera, Plague, Yellow Fever, Dysentery, Intermittent Fevers and Hospital Gangrene due to Infusoria which perform the functions of ferments? Memoir read to the Academy of Sciences (Paris). By Doctor Jules Lemaître.

The history of these diseases ascends to the very cradle of Medicine. The numerous descriptions of them which have been transmitted to us, have taught us, I may even say, to render homage to the authors who have devoted themselves to their investigation, since they have described admirably the conditions under which these diseases originate, and all that clinical observation and pathological anatomy can teach.

But they left for solution two important points of their history, of which one is the consequence of the other. I refer to the nature of these diseases, and the rational treatment which should be applied to them.

In fact there can be discovered upon this subject, amongst

authors, only a series of hypotheses, accepted to-day by some, rejected to-morrow by others. A few physicians, recognizing the insufficiency of these theories, have preferred to acknowledge that the nature of these diseases was unknown to them. Finally, there are some who, like M. Roche, of the Academy of Medicine, have written: "The essence, or the intimate nature of diseases, is unknown to us. Object of useless researches, subject of ridiculous conjectures in all times, it escapes us, and will ever escape us. It would be idle to seek further to discover it. It is ever impenetrable." (*Lettres sur le choléra.*)

This uncertainty appeared to me to be the cause of the diverse and unsatisfactory modes of treatment which have been recommended to combat them. Such was the state of science upon this point in 1860. Since this epoch I have published numerous investigations into the nature of ferments, of virus, of poisons, and of miasmata, which have for their principal aim the elucidation of this important point of general pathology, in order to establish the therapeutics of these diseases upon more certain bases. I have even condensed into the form of a proposition since 1862 (See *Moniteur Scientifique* du Docteur Quesneville, Octobre) my opinion upon this important question. (See my book upon Phenic Acid.)

To-day I shall have the honor to submit to the appreciation of the Academy the results of new investigations, which, associated with those that I have already communicated, appear to me to demonstrate that these diseases are the work of infusoria which play the part of ferments.

The title of my new work appears to me to indicate clearly my object. But the solution of this question is not so simple as it appears. It appears to me that the problem should be thus stated: *These diseases being given, to demonstrate in the media in which they originate, and in the organism, the existence of infusoria which play the part of ferments.*

To one who studies the subject with care, other embarrassing questions speedily present themselves, whose solu-

tion it is nevertheless important to give. These questions are the following:

1st. If these minute organisms originate these diseases, how is it that man and other animals have not disappeared from the face of the globe long since; since it has been demonstrated that these infusoria exist everywhere, in the air, in the water, in the earth, in our food, upon the body of man in health or disease, upon vegetables, etc., etc.

2d. Why, if they are due to microphytes and microzoa, do they disappear, since these little beings reproduce themselves and multiply in incalculable proportions. Does it not seem that their work would only terminate after the destruction of the human species and of other animals?

3d. Why does it happen in an endemic or epidemic, that many individuals are not attacked?

4th. Can the alteratives of the solids and liquids which are observed in these diseases be attributed to them?

5th. Are the phenomena thus presented due to microphytes or microzoa?

6th. Is each one of these diseases due to a special microphyte or microzon, or are they indeed the result of the action of several?

It must not be misunderstood that these constitute a portion of the problem. In spite of the difficulties which they present, I shall treat them successively in the course of this work. I shall commence by making an inventory of the facts already acquired in the history of these diseases. By classifying and criticising them, and by adding thereto my own observations I hope to throw the clearest light upon this question.

I shall first discuss a point which seems to me important, viz.: Do these diseases form distinct species?

The appellations which have been assigned to them are based upon their dominant symptoms. They appear to me to have no scientific value. If it is attempted to solve the problem which I have just proposed, I think it will be necessary to take into consideration these different appellations,

because, in describing these diseases as of distinct species, it seems that science has been rather embarrassed than aided. Proposing to remove the subject from the abstract to the concrete, as my illustrious master, M. Chevreul would say, I cannot accept, as characteristic of these diseases, names based upon a symptom, because this symptom may, perhaps, be produced by very different causes. Moreover, they may all be found associated in a single one of these diseases. All, as we shall see, originate from a common cause, and have common characteristics. This is my reason for insisting upon this point.

It is sufficient to consult the nomenclature of these diseases to conclude that a large number of authors have not accepted the designations which we are now considering.

In the midst of this confusion of names, and of opinions which have originated them, there will be found landmarks planted by the princes of science, which seem to me, to indicate the path leading to the demonstration of the unity of species of these diseases.

Hippocrates, whose teachings have been religiously followed up to the end of the last century, does not separate the plague from pestilential fevers. Under these denominations a great number of authors have described the fever of prisons, of ambulances, of ships, of camps (described at our epoch under the name of typhus and of typhoid fevers). Cholera has been, likewise, described under the name plague.

Galen, perceiving that in these diseases the blood becomes putrid, designated them under the name, putrid fever. The opinions of Galen reigned supreme up to the end of the last century, an epoch at which science, like empires, experienced a violent shock.

The plague of Egypt is described by Hoffmann, Swédiaur, Vogel and others, under the name typhus.

Yellow fever is called by Sauvages typhus icterodes; and typhus miasmatic, ataxic, putrid and yellow by M. Bailly. Others have called it also putrid or malignant fever, like

that of prisons, ambulances, etc., already referred to. Cholera has been termed by several authors, and very recently again by M. Pellarin, Indian typhus.

A great number of physicians since Galen admit a choleraic intermittent fever, and cholera has been considered as a pernicious intermittent fever.

Cullen, whose authority is so great, says that yellow fever, intermittent, malignant and putrid, bilious, mesenteric and catarrhal fevers should not be separated from typhus, of which they are merely varieties.

We find in this rapid analysis an important indication: it is the tendency of eminent men towards unity of species of these diseases.

If we interrogate history still further upon this subject, we find facts of still greater importance.

Since the time of Hippocrates, physicians and veterinarians have observed that wherever matter in a state of putrefactive fermentation exists in great abundance, or wherever there may be large collections of men or of animals in health, either within restricted limits, or in the open air as in camps, serious diseases, transmissible, according to some, non-transmissible, according to others, originate.

For Example: Cholera is endemic upon the borders of the Ganges, which constitutes the place of sepulture of the Hindus.

Yellow fever originates upon the borders of marshes, principally at the mouths of rivers where putrescent matters are massed in considerable quantity. Plague is endemic in Egypt, which is covered with marshes. It is especially upon that portion of the population which lives in profound misery, in common with domestic animals, in habitations where filth of all sorts accumulates, that this disease rages.

Intermittent fever, dysentery, the cachexia or rot of sheep, which rages also amongst bovine cattle, originate wherever stagnant water containing putrescent matter exists.

Accidental foci of putrid fermentation, constituted of accumulations of dead bodies of men or of animals, as, after great battles or epizootics, have likewise originated in every age, grave maladies, which have been described under the name of plague, pestilential fever, malignant, putrid or typhus fever, and of hospital gangrene.

My experiments upon the nature of miasmata furnished by the human body in health, which engender the diseases already referred to, demonstrate that they originate also from matters in the state of putrid fermentation.

It cannot be ignored that there is for all these diseases a common origin: the emanations from matters in the state of putrid fermentation. If I now analyze and compare the lesions and the symptoms which are observed in these diseases, it will be easy for me to prove that this common cause produces common effects; for example: the buboes, the carbuncles, the petechiæ, the gangrene, the gastro-intestinal symptoms, and others which are observed in individuals subjects of plague, exist in hospital typhus, in severe typhoid fever, in yellow fever and in the dysentery of hot climates. This dysentery often follows intermittent fever, or even complicates it, or is terminated by it.

Hippocrates, Torti, Willis, Morton, Monget, Sauvages, Morgagni, and physicians of our epoch admit a choleraic intermittent fever, and as has been already stated, cholera has been considered a pernicious intermittent fever.

In cholera, after the first symptoms, a very decided typhoid condition has been frequently determined.

The intermittent fevers of Africa are frequently initiated by a general chill of the body, which persists until death;* under the name of algid fever. These fevers are accompanied by vomiting, diarrhœa, epigastric uneasiness, dyspnea as in cholera. In yellow fever the urinary secretion is suppressed as in cholera.

* This frequently occurs in the intermittents of the extreme Southern States of this country. *Teste mepsauro.*

Excellent physicians have collected numerous observations to demonstrate that intermittent fever may be transmitted from one individual to another.

I might cite still other common characteristics which are observed in all these diseases. I have selected the most important in order to fix the attention more firmly.

This comparison appeared to me of the highest importance, because it demonstrates, in the diseases described as of distinct species, the existence of a great number of common symptoms, of identical lesions or alterations.

Physicians who have studied with care the history of diseases know that certain symptoms may induce variations in the morbid species, but cannot change it.

All these facts borrowed from the history of these diseases inflict a heavy blow upon the edifice of the past. They seem to me to indicate the necessity for a reformation of the nomenclature of these diseases. I shall produce others which seem to me to establish their identity in nature, and which permit me to hope that soon they will be ranged in the great class of parasitic diseases.

Numerous cases of poisoning have been occasioned by putrescent food. Lesions and symptoms analogous to those which occur in the diseases now under consideration, have been observed. Physicians know that the internal use of marsh water produces the same effects of acute or slow intoxication, as the absorption of their emanations by the respiratory surface.

According to M. Roche, of the Academy of Medicine, intermittent fever has been produced by introducing into animals the vapor of water condensed over marshes.

Numerous experiments have been made upon animals with putrescent matters. Some have been caused to inspire their emanations; in others they have been introduced into the stomach or into the rectum, or by subcutaneous inoculation, or injected into the veins. In these different experiments the results have been the same. Grave symptoms or death have been the consequence. Thus, when men or

animals introduce into their organisms, by the modes just mentioned, putrescent matters, the same effects are observed.

The experiments which I published long ago, explain, and seem to me to demonstrate the cause of the identity of these results.

In fact, I have proved that the gases and vapors which are disengaged from all putrescent matters carry with them in considerable quantities the reproductive bodies of microphytes and of microzoa which immediately provoke fermentation in fresh animal or vegetable substances. Now the tenuity of these bodies permits them, not only to remain in suspension in the atmosphere, but even to penetrate into the organism through the respiratory ducts. By the inoculation, by the injection, or by the introduction of these matters into the digestive tube, both the reproductive bodies and infusoria in the adult state are caused to penetrate.

If these little beings occasion these diseases, they ought to be discovered in the organisms of the individuals attacked by them. This fact is now incontestable. Bacteria and vibriones exist in the circulating blood of typhic and variolous subjects; in the disease termed _____ in anthrax, in moist gangrene, and in malignant pustule. These same animalculi, as also monads and cerco-monads, exist, likewise, in the dejections of typhic, choleraic and dysenteric subjects. Many observers, as well as I, myself, have determined this. The discovery of these infusoria in all these pathological cases, appears to me to possess immense importance, since, in the normal state they do not exist in the organism, as will be seen hereafter.

I have made experiments upon myself in a state of health, with a view to ascertain if an exclusively animal or vegetable regimen favored or opposed their development in the residua of digestion. These experiments which gave me negative results, have assumed subsequently for me real importance.

Having been violently attacked, some months later, by

cholera, I made of it a new study, which enabled me to compare the results. Eight days after the commencement of the attack I could scarcely keep myself upright; I examined not only the *feces*, but also all the products of the secretion and of respiration. Neither the watery vapor of respiration collected with the precautions I have recommended, nor the nasal mucus, nor the urine, contained infusoria. But I discovered in the *feces* myriads of bacteria *termo*, and vibriones, linear, angular and catenary.

Some of these last have seven rings. I also found spirilli volutantes, little monads and circomonata crassicaudæ. This observation compared with the first appeared to me of the highest importance, and what gave it still more significance, was the fact that two months after my recovery, examining anew these matters with the microscope, I no longer found infusoria. Their presence, therefore, was certainly due to cholera. Having perspired freely, I recognized in the matters collected upon the different portions of the skin, spores analogous to those which I described in my memoir upon the nature of miasmata, and a considerable quantity of bacteria and little vibriones. Having been compelled to neglect during eight days the care of my mouth, I found in abundance bacteria, linear vibriones, spirilli and monads. Finally, removing a flannel waistcoat which I had worn four days, I caused it, still moist and warm to be washed in a small quantity of distilled water. I immediately examined this liquid with the microscope. I discovered in it, in abundance, the same species of infusoria as those whose existence upon the skin I had already determined.

The experiment, which demonstrates the presence of infusoria in the clothing, explains how these, and also bed-clothing, have so often propagated these diseases. This is not all: blood collected during life from man and from animals suffering from typhus or variola, and containing bacteria and vibriones has been inoculated, or injected into the veins of dogs, of sheep and of rabbits in perfect health.

The bacteria and the vibrones would reproduce and multiply themselves, determining formidable symptoms, and almost always death. MM. Cose, and Feltz, who have experimented, have succeeded in reproducing in rabbits ten successive generations of bacteria, as M. Virchow has done with trichinæ. They ascertained that the more these generations are repeated the more active they become, which is demonstrated by the more prompt rapidity of the accidents which they occasion. I published some experiments which established that bacteria desiccated return rapidly to life when they are bathed in water at 25° centigrade. MM. Cose and Feltz have established the same fact upon blood containing these animalculæ which they had desiccated. This blood inoculated, in the dry state, into rabbits, did not induce death, whilst, when previously moistened and inoculated in the same proportions in other rabbits, death was the speedy consequence. I shall hereafter refer to this fact.

What gives great importance to the experiments of the learned professors of the Faculty of Medicine, Strasbourg, is the fact that they corrected them by comparative experiments made with normal blood. These last demonstrate that a considerable quantity of blood taken from a healthy man may be injected under the skin of rabbits without inducing augmentation of temperature, nor disturbance.

Before concluding this first treatise, I will recall the discussion which I established—formerly in order to prove that the causes of transmissible maladies could not be attributed to chemical agents nor to poisons, nor to dead matters; because neither can reproduce and multiply itself, whilst the essential characteristic of the diseases which we are considering is to reproduce and multiply itself in proportions sometimes considerable. Now if, as I have done long since, one should kill these infusoria either with coal tar or its compounds, or with other substances, not only is the fermentation arrested, but at the same time moreover, these matters already profoundly altered, are deprived of their power to induce it elsewhere, either by their exhala-

tions, by contact, or by inoculations. From being dangerous as they were, they become, after the death of the infusoria, entirely inoffensive. Making applications of these facts to the therapeutics of anthrax, of moist gangrene of malignant pustule (charbon) of typhus fever, of dysentery, of cholera, of tinea, of the itch, of dissecting wounds (of which last one was received in opening a horse dead of glanders), remarkable results have been obtained, (*V de l'acide phinique.*) All the facts which I have just related in this sketch are linked together. They appeared to me of the highest importance for the solution of this question. With these little beings, all the most difficult points which the history of these diseases presents can be scientifically resolved, as I hope to demonstrate in the sequence to this work.

CORRESPONDENCE.

The Waukesha Medicinal Spring.

EDITOR CHICAGO MEDICAL JOURNAL:

Allow me to communicate what I know personally regarding the Medicinal Spring recently discovered by accident at Waukesha, as I think it will be of peculiar interest to your readers.

The following is the way in which the spring was discovered: Col. Dunbar, a wealthy citizen of New York, being on a visit to his sister-in-law, in Waukesha, was walking in the outskirts of the village, one day, in company with some friends. He had been laboring under *diabetes saccharum* for some fifteen months previous, and had availed himself of the best medical skill in both Europe and America without obtaining any relief. He drank several gallons of

water daily, and passed about an equal quantity, being obliged to frequently rise during the night. His water was repeatedly tested by Dr. Parker, in New York, and found loaded with sugar, and where it dribbled away, it stiffened his clothing so that the cloth would break like pasteboard. His thirst was constant and intense, so much so that he was in the habit of carrying a bottle of water in his pocket, to quench it. He was much reduced in flesh and strength, had a very bad color, and his gums had the appearance of those of a person salivated. On the occasion referred to he became so parched with thirst that he could scarcely speak. His friends said: "By the way, there is a spring near by; we'll get a glass and go down there and let you drink." This they did. The Colonel felt a peculiar relief immediately—unlike that afforded by common water. I should remark that this spring had been known to the villagers for thirty years; the boys often used to catch "minnies" out of it for fish-bait, but no one ever suspected that it contained medicinal virtues.

After lying awhile under the shade of an oak tree which stands near the spring, the Col. went back and drank freely of the water again. He then went home perspiring freely.

Strange to say that from the first taste of the water his symptoms began to abate. He felt so much relieved next morning that he visited the spring early, and drank freely again, and continued to do so, until he recovered entirely. Within twenty-fours, the fierce thirst had left him, and he was no longer obliged to rise during the night. Believing his cure permanent, the Col. returned to his old mode of high living, wine, etc., and his complaint returned. He again had recourse to the water, by the advice of Dr. Parker, and was again cured within twenty-four hours. This winter, being in Washington, and living high, it returned a third time, and he again wrote Dr. Parker. The Doctor's prescription was, "Drink the water again." A few weeks since, the Col. arrived in Waukesha to follow this advice, and, as before, received immediate relief. He

has gained five pounds in flesh, and looks as well as any man I ever saw, and has not a particle of his old trouble. I know Col. Dunbar personally, and write of what I know. He is a man weighing 235 pounds, stout and fleshy. On a healthy person, the water is, I judge from my own experience, decidedly diuretic; but those who have used it for diabetes, with great unanimity, declare that "the more they drink the less they urinate," it seeming to have an astringent effect on the kidneys.

The spring itself bubbles up under a hillside, among sand and limestone rock. The water is as clear as air, and tastes like pure spring water—has no other perceptible taste—but is so impregnated with salts of some kind that the pond into which the rivulet from the spring empties itself, which is about seventy-five feet in circumference, *never freezes* during the coldest weather, although fully exposed and unsheltered. The spring water is about 50° or 60° Fahr.—being that of ordinary well water. I have visited the spring, and noticed several small fish in it. The water is pleasant to use, and is used for table and drinking purposes entirely by Miss Clark (the Colonel's sister-in-law) and her family. It is the middle and largest one of three springs, within thirty feet of each other, all, apparently, having the same origin, and are probably of similar properties, although the water of the other two have never been tried. If there is any iron in the water, it must be the merest trace, as it presents none of the characteristics of the chalybeates.

If drank freely before breakfast, the water is mildly aperient, and is said to be one of the finest regulators of the bowels ever tried, and a sovereign remedy for habitual costiveness. Some who have used it complain of its causing vomiting. I have drank as much as a quart of it within an hour, without noticing any special effect, except a sharpening of the appetite. An analysis, I understand, has been made of it, for Dr. Parker, but I have not seen it. When

boiled down, it leaves a thick, syrupy substance at the bottom of the cauldron.

It has performed three other cures, all of whom I have seen and conversed with, scarcely less remarkable. The Colonel's sister-in-law had labored for years under a distressing "*gravel*." The water has effected a complete cure of this difficulty in her case. Mr. J. J. Clark had the appearance of a person with confirmed tuberculosis. It was generally conceded that he would not live three months, as his sister had died of the same disease. He was induced to drink the water, although he had no faith in its efficacy. The result was most marvelous. The cough left him, his appetite, digestion, and spirits returned; he fleshed up, all his pants "got too small for him," and, to-day, a more healthy looking man I never saw, and he has no cough, and says he feels as well as he ever did in his life.

The last day I was at the spring, Mr. Kimball, an old and respected citizen, living near the village, and who, like most old men, being troubled with his water-works for years—his trouble being similar to Col. Dunbar's, so far as symptoms went, although whether the urine was saccharine or not I do not know—drank of the water, obtained speedy relief, and is now entirely free of the difficulty. He was, in fact, jumping around, expressing his satisfaction and sense of relief in the most lively manner.

Here, then, are at least four remarkable and well-authenticated cures, all the parties being residents of the place, and their cases well known to all the citizens, and they are all ready and eager to tell how they were cured. There must certainly be some wonderful virtue in the water; and if it should prove as beneficial in all cases of *diabetes* alone, as it has in Col. Dunbar's and Mr. Kimball's, it will be a boon to suffering humanity, the value of which cannot be overestimated, for this disease has, heretofore, baffled all known remedies. But what shall we say of it if it should prove equally beneficial in all derangements of the kidneys, rheumatic and gouty complaints? And what a tide of pil

grims from every part of the world will seek the healing pool if all cases of tuberculosis similar to Mr. Clark's should be cured by its use?

At present the spring is free to all, and, perhaps, always will remain so; the Colonel and his sister-in-law, who have purchased the ground, being persons of enlarged and liberal views on such matters. The supply of water is inexhaustible, and all who will, may drink freely, without money and without price. All that is needed is a good hotel to accommodate those visiting the waters—and this the Colonel assures me he intends to erect the coming summer.

The water deserves a thorough analysis, and is now being tried by Dr. Parker, of New York, in the hospital under his charge; and also by a number of parties—invalids—on the ground.

F. W. WILLIAMS, M.D.

March 16th, 1869.

J. ADAMS ALLEN, M.D. :

DEAR SIR : Enclosed find balance for the JOURNAL as per bill. If it is not presuming too much upon your good nature, I would like to mention a remarkable cure of epilepsy which occurred in the limits of my practice. The patient, a girl of nineteen years, had been afflicted from childhood with epilepsy, the paroxysms recurring every two or three weeks, and continuing from six to fifteen hours each time, until the intellect was almost destroyed. About ten months ago she became pregnant, and the paroxysms became less frequent, and at the end of two months entirely cured. I attended her during confinement, and, contrary to my expectations, there was no appearance of convulsions during, or following, labor; nor has there been any symptoms of them since. Is the man who effected the cure a "Quack" or a "Regular?"

ORIGINAL COMMUNICATIONS.

Tubercular Kidneys.

Dec. 5, 1864.—E. K——, female, aged about thirty-five years. Much emaciated and prostrated; vomiting ingesta persistently. Complains of severe pain over the left kidney; tongue slightly reddened, pulse and skin nearly normal. *No cough*; bowels obstinately constipated. No satisfactory history of the case can be acquired. Directed a blister to be applied over the left lumbar region, and the urine to be reserved for examination.

Dec. 6th.—Renal pain greatly relieved. Urine nearly neutral (very faintly acid). Specific gravity 1025 (at 65° Fr.). No perceptible change was produced by any chemical reagent, except the deposit of a brown, flocculent precipitate, upon boiling it after the addition of nearly an equal bulk of liquor potassæ. Under the microscope a small quantity of finely granular matter was visible, intermingled with a very few cells obscurely resembling pus cells.

The renal pain, as stated, was diminished, but the gastric uneasiness and tenderness appeared to have increased.

Ordered one-fourth of a grain of calomel every three hours! which, producing no amelioration of her condition, after the lapse of forty-eight hours, was discontinued. She was then confined exclusively to milk, of which about two ounces were administered hourly. This was, like every thing else, rejected by the stomach, and the patient sank, apparently from inanition, on the 12th (seven days). *The secretion of urine amounted to about one quart daily*, maintaining its characteristics as already described. The bowels were obstinately constipated.

Sec tio cadaveris eight hours after death. *Head*, not examined. *Body*, emaciated to an extreme degree; subcutaneous

layer of fat of a deep orange color. *Chest*, pleural surfaces adherent throughout their whole extent; right lung emphysematous, left lung collapsed. *Structure, normal.* Heart, pericardium containing about one ounce of serum; right ventricular and auricular walls fatty throughout about one-third of their thickness.

A firm, white, old fibrinous clot, one and one-half inches in length by half an inch in thickness, in right ventricle. Left ventricle concentrically hypertrophied; walls about one and a quarter inches in thickness; valves normal.

Liver much engorged with venous blood, but otherwise apparently healthy. Gall-bladder distended with bile. Spleen enlarged, engorged with blood, but otherwise apparently healthy, except upon its anterior face, which had undergone complete cartilaginous degeneration for the space of four inches in length, two in breadth, and one-sixth of an inch in thickness. Right kidney reduced to little more than half its normal size, lobulated externally, and of a deep purple color, its interior converted entirely into tubercular matter, except the pelvis, which was occupied by a mass of fat. Left kidney enlarged to twice its normal size, of a deep purple color externally, occupied internally, wholly by vomicae, enclosed by dense, tough tissue, varying in size from that of a pin's head to that of a hen's egg, stuffed with tubercular matter. The lower extremity, for the space of two inches in breadth by half an inch in depth, was healthy, constituting the whole of the secreting structure remaining in either organ.

The mucous membrane of the stomach and intestinal canal throughout was congested, but otherwise healthy, the intestines being in many places adherent from old circumscribed peritonitis.

The above reported case may possibly interest the readers of THE JOURNAL, from its rarity, and from the absence of objective symptoms of sufficient pathognomic value to serve as a basis for a diagnosis.

The striking peculiarities are:

1st.—The existence of large masses of tubercle entirely isolated, limited exclusively to one organ, or system.

2d.—The maintenance of the functional energy of the kidney to a degree approximating so nearly to the normal standard; so small a portion of its structure remaining intact, involving,

3d.—The absence of constitutional indications (aside from the gastric irritation, if that could be so considered) of retention of the elements of the urinary secretion in the blood.

4th.—The absence, from the urinary secretion itself, of any sufficient indications of the true condition of the secreting organs. Having had many opportunities of examining tubercular sputa, and also urinary deposits, with the microscope, the existence, in this case, of tubercular matter in the urine in appreciable quantity would surely have been recognized.

An accurate diagnosis, in this instance, could possess only a scientific value, having no practical significance whatever, and yet the physician can be placed in few more embarrassing positions than to find himself utterly unable to determine the true pathological condition of his patient.

EDITORIAL.

"There's cheating in all trades but ours," says the old adage. Recent developments, however, would make it appear that we, like some others, have been reposing serenely under the consolations of the maxim, until its applicability has become a matter of tradition rather than of justice. The statements made by Mr. E. H. Sargent, President of the Chicago College of Pharmacy, at the late annual meeting of that body, with reference to the frauds

practiced in the drug trade, demand attention from the whole profession who are, perhaps, more immediately interested in the subject than the pharmacists to whom the remarks were directed.

Coming from such a source these statements must be considered authoritative and reliable, and the grievances which they set forth call loudly for reform. If the advocates of *protection* are so very anxious for the *protection of the public* as they claim to be, let them direct their efforts in this direction, in which the prospect of attaining their object is more promising. Let them induce the Legislature to pass an act (and provide for its enforcement also) to punish with the utmost severity these indirect murderers, who jeopardize and destroy human life for the sake of money.

The vender of "Benzine whisky" is far less culpable than these; he merely offers the option to others to poison themselves; they poison the innocent and unsuspecting.

IN the number of THE JOURNAL of February 15, 1868, we were so fortunate as to be able to present to our readers a verbatim report of the experiments of Dr. Jules Lemaire, as presented by him to the Academy of Sciences, Paris. We have been still further fortunate in securing a report of Dr. L.'s conclusions from his observations, which we give entire, in the present number.

DR. J. HUGHES BENNETT, of Edinburgh, should be heard on the other side of the subject. In a pamphlet reprinted from the *Edinburgh Medical Journal*, for March, 1868, Dr. B. not only denies the justice of Lemaire's conclusions, but also completely demolishes the cell theory. So far as the atmospheric Germ Theory bears upon the question of the origin and propagation of disease, its solution is certainly of practical importance to medical men, and deserves still further investigation as, notwithstanding the labor expended upon the question, it is *adhuc sub judice*.

OBITUARY.

GRISOLLE.—After three years of suffering, in consequence of an attack of apoplexy, this distinguished physician died on the 10th of February, in the fifty-eighth year of his age. He was borne to his last resting-place by his fellow-members of the Faculty of Medicine, Paris.

Death of Dr. A. A. Dunn.

At a regular meeting of the Chicago Medical Society, held on Friday evening, the 12th inst., the following report was adopted:

The undersigned committee to whom was referred the duty of expressing the sentiments of this society regarding the late A. A. Dunn, M.D., of this city, would respectfully report:

Resolved, That Dr. Dunn, by his natural intellectual endowments, his education, his professional skill and integrity, his ardent support of medical societies and ethics, had won the esteem and confidence of all the members of the profession who knew him; while the addition of a uniform Christian deportment, and a self-sacrificing patriotism, had added equally the respect and warm attachment of all classes of community.

Resolved, That by his death, the profession and society have lost one of their most respected and useful members, the nation one of its true heroes and defenders, and this society one we all esteemed as a brother.

Resolved, That a copy of the foregoing expressions of sentiment be communicated to the family of the deceased, and to the medical journals and daily papers of this city.

N. S. DAVIS,	} Committee.
T. D. FITCH,	
A. GROESBECK,	

FOREIGN ITEMS.

Medical Education in Spain.

The provisional government of Spain has decreed *absolute liberty of education*. Any Spaniard may found educational establishments, and open public courses of instruction of any kind whatsoever, without being obliged to submit the programme of leçons, to the minister, or to any representative of authority.

This innovation in established usage appears to be viewed differently by the two most prominent representatives of the medical press in Spain, *El Genio Medico-Quirurgico* and *El Siglo Medico*, which, by their antithetical attitudes, to quote the accomplished Redacteur-en-chef of the *Gazette Médicale* of Paris, "suggests the two philosophers of antiquity, Democritus and Heraclitus; the first-named journal recognizing in the new order of affairs only cause for joy, while the second groans over the inconsiderate enthusiasm of its cotemporary."

In Italy the attention of the profession is, just now, especially directed to the subject of malaria, of which there are such numerous sources beyond the Alps.

The *Gazette Médicale* of Turin expresses much astonishment that the rice fields should be permitted to be maintained. The danger to human health and life arising from the culture of rice has been indicated from time immemorial by hygienists and philanthropists; the medical press, special publications, sanitary and civil councils, medical and scientific societies and associations have, always and everywhere, insisted upon the pernicious effects of the emanations from inundated rice-fields. The peasants who labor, during a portion of the year, in these localities, by their cachectic appearance, their etiolated complexions, the engorgement

of their abdominal organs, and the brevity of their lives, demonstrate most eloquently the deadly influences to which they are subjected.

The same authority estimates that the culture of sixteen hectolitres (3,200 lbs.) of rice costs a human life, and demands that the government shall disregard the pecuniary interests of proprietors, and suppress, by law, a branch of industry in which public health is sacrificed to private gain. It calls upon Italy to imitate the example of Portugal, which has prohibited rice-culture, to the great benefit of public health.—*Gazette Médicale, Paris.*

The *Gazette Médicale* of Venice calls the attention of the authorities to the dishonest and criminal practices of confectioners in adulterating their wares. Its remarks are suggested by the poisoning of a family consisting of a lady, child and servant, by eating nougat, which was proved by chemical analysis to have been colored with arsenite of copper (Scheeles green). The same coloring matter was detected in other articles in the same shop. The municipal authorities caused a placard designating the offence to be affixed to the establishment in question, and at the same time prohibited, under heavy penalties, the sale of any goods, manufactured at the establishment, already in the market.—*Gazette Médicale, Paris.*

NOTE.—It seems useless to warn our own citizens against the deleterious character of the confectionery so largely consumed throughout the West. If any one will take one of the common motto-wafers or kisses, and attempt to dissolve it in a glass of clear water, he will have an ocular demonstration, more convincing than a chemical analysis, of their utter unfitness for food.

Les Annales de Médecine of Florence reports four cases of tænia originating from the use of raw meat, and quotes M. Weisse (of St. Petersburg), who, amongst the first to use raw meat in the treatment of the diarrhœa of infants, observed that many of his little patients contracted tænia solium; and this result follows as well the use of beef as of pork. The frequency of tænia amongst Abyssinians is

attributed, by nearly every traveler who has written of that country, to the custom of eating raw meat, by the natives.

The translator has recently expelled a *tænia solium* from a patient, in this city, who had eaten no pork, but freely of raw beef. W. H.

The writer further suggests the importance of observing carefully the effects of fish diet, in originating entozoa, in countries where it constitutes the staple article of food, attributing to trout and the salmon the origin of the bothriocephalus.—*Ibid.*

Germany.

Appropos of entozoa, Dr. Flamon has reported to the Medical Society of Vienna the outbreak of another epidemic of trichinosis at Shöenbeck (Germany), "that classic land of the trichina." It is asserted that this disease is no longer accidental, but has become actually endemic on the further side of the Rhine.—*Ibid.*

Colloid of the Brain.

M. Magnan presented, recently, to the Biological Society of Paris, preparations of colloid substance observed upon the surface of the brain of a patient who had yielded gradually to the progress of general paralysis. The colloid substance was located in the gray substance of the convolutions of the frontal and spheroidal lobes. It was opaline in color, and depressed the cerebral substance. It appeared in the form of small islets. Examined with the microscope, there were observed in it concentric disks of a brilliant opaline matter, studded with shining nuclei, and in the middle of the central disk, a capillary vessel with thickened walls was perceived. The nervous substance itself was altered in the same manner as the connective tissue; that is to say, it was shining like the nuclei. By comparative examinations of several preparations M. Magnan has been led to think that the histological changes commenced in the nuclei, and invaded secondarily the nervous cells.

Treated with tincture of iodine and ether, these prepara-

tions preserved their primitive aspect. The alterations were, therefore, due neither to fat nor to starchy matter.—*Ibid.*

M. Dumontpallier called the attention of the Biological Society to the frequency of permanent congestions of the ears of the insane, and especially of the subjects of general paralysis. No physician can traverse the corridors or dormitories of insane asylums without being struck with the appearance of this congestion of the ears, which has, moreover, a direct relation to congestion of the cerebral membranes.—*Ibid.*

Upon the Mode of Action of a Group of Poisons.

BY L. HERMAN, FROM LA GAZETTE MÉDICALE, AND THE ARCHIV. FÜR ANATOMIE, PHYSIOLOGIE UND WISSENSCHAFTLICHE MEDICIN.

The author has studied the group of anæsthetics of which ether and chloroform are the best known; but this group comprises many other bodies, amylene, clorethyl, and its derivative chlorides; acetic ether, and many other combinations; the ethylic, methylic and amylic alcohols; and lastly three gases, protoxyd of nitrogen, chloride of methyl and ethylene.

All these bodies have, in his opinion, the common property of dissolving the sanguineous globules in the plasma, as Böttcher and Von Wittich have demonstrated for ether and chloroform.

With reference to volatile substances there is no doubt of it, but as to gases, it has not been demonstrated, except of chloride of methyl.

How do these substances act upon the nervous system? Does the destruction of the globules act upon the nervous system, either through the medium of the respiration, deranged in its principal condition, the introduction of

oxygen, or by the action of the hæmato-globuline set free. But this is not probable, for several reasons.

1st.—There may be intense anæsthesia without extensive destruction of globules. For the destruction of globules of the blood in circulation there is a very sensitive test, the presence of biliary coloring matter in the urine; now icterus although common in "*chloroformization*" is far from being a constant phenomenon.

2d.—The respiration cannot be the cause of the phenomena observed, first, because they are not dyspnœic in their nature, and next because anæsthetics act upon the frog, an animal almost insensible to respiratory lesions.

3d.—Free hæmato-globuline cannot be the cause of these phenomena, for anæsthetics act upon invertebrata with absolutely colorless blood, as well as upon red-blooded vertebrata.

According to M. Herman there exists in the nerve-substance and in the blood corpuscles an identical matter, *protagon*, upon which anæsthetics act.

Liebreich has demonstrated the existence of *protagon* in the brain, and L. Hermann has demonstrated it in the globules. This matter is dissolved by the anæsthetics, sufficient quantities of which may be received into the blood. The gaseous anæsthetics, on the contrary, and especially the chloride of methyl, are not dissolved in sufficiently large quantities in the blood, and hence only cause the blood globules to swell, without effecting their solution. As to the two other gases, they are dissolved too scantily in the blood to permit the detection of any appreciable action upon the red-globules.

This interpretation leaves a desideratum. How does it happen that bodies, without appreciable action upon the *protagon* of the globules, cannot act upon the *protagon* of the nervous substance with sufficient effect to produce the phenomena of anæsthesia?

The author explains it by the delicacy of the material processes of the cerebral substance, an explanation which, he admits, leaves still a desideratum.

It is asked, next, if *all* bodies dissolving the sanguineous globules might not have likewise this action upon the nervous centres, and in investigating, in this point of view, the biliary acids, he has seen his supposition confirmed. He cites in illustration the nervous phenomena of severe icterus.

M. Hermann concludes his memoir by an appendix, in which he gives the process of extracting the *protagon* of the blood and indicates its characteristics.

Animal Heat.

BY TSCHESCHICHIN.

The investigations of the author have been made upon rabbits in the laboratory of Dubois-Reymond. He arrives at the following conclusions:

1st.—The spinal cord, containing the circulatory and respiratory centers, acts mediately upon the organic chemical processes, and consequently upon animal heat.

2d.—Section of the spinal-cord results in retardation of the circulation, which induces repletion of the veins by the blood, and in consequence of this, radiation increases, and the general temperature diminishes.

3d.—If the body of the animal be enveloped in bad conductors of heat, the loss of caloric from the surface of the body is diminished; the diminution of temperature may then be diminished or prevented at will; and inversely, the colder the medium in which the animal is placed after the section of the cord, the more rapidly it becomes cold.

4th.—Since the augmentation of the radiation of superficial caloric is due to paralysis of the vessels, and to their repletion with blood, all measures which remove this paralysis retard the radiation and the loss of heat.

5th.—The causes which induce paralysis of the vessels act upon the radiation of caloric, as does section of the spinal cord.

6th.—The cramps, which are produced after the ingestion of certain poisons increase the internal temperature of the bodies of animals.

7th.—In poisoning by alcohol the general temperature commences to sink immediately after the poisoning.

8th.—Section of the great sympathetic has, upon the general temperature, the same effect as section of the spinal cord.

9th.—Section of the pneumogastric has no appreciable direct influence upon the changes of animal temperature.

10th.—Section of the medulla oblongata at its point of union with the pons-varolü, results in painful febrile phenomena.

11th.—The same febrile phenomena are manifested after the injection of animal fluids in process of putrefaction.

12th.—Physiological experiments and clinical facts confirm the presence of *moderator centers* in the brain.

Investigations into the Toxicological Properties of Aconitine.

BY D. ACHSCHARUMOW.

The author has used a solution of chloride of aconitine of one per cent. The poison was introduced under the skin, or carried into the stomach. The experiments were made upon frogs, pigeons and rabbits. In large doses aconitine induces death in a few minutes, after painful convulsions and the phenomena of asphyxia.

After the most minute dose, the following symptoms were observed:

Immediately after the poisoning, there was detected a retardation in the pulsations of the heart and in the respiration, together with diminished pressure in the vessels; respiration difficult and dyspnœic; cyanosis was rapidly developed; the temperature of the body was lowered.

Soon there occurred a persistent acceleration in the pulsations of the heart; respiration became more free; sanguineous pressure augmented; at the same time the phenomena of paralysis manifested themselves, and before they had acquired all their intensity, the activity of the heart again sank, and this organ was left distended passively with blood; circulation was arrested, convulsions supervened, and the animal died asphyxiated. After a very small dose the following symptoms appeared.

Salivation, difficult respiration, slight cyanosis, retardation of the pulsations of the heart, diminution of temperature, then, according to circumstances, the normal condition was restored, or the paralytic phenomena increased in intensity.

The author thus formulates his conclusions:

1st.—In poisoning by aconitine, death occurs by asphyxia, and by paralysis of the heart; paralysis which involves the motor ganglia of the heart.

2d.—The poison induces, first, excitation of the medulla oblongata, which is transmitted to the vagi nerves.

3d.—The vagi nerves are paralyzed by a continuation of the excitation.

4th.—Paralysis of all the spinal motor nerves is induced, as well as of the motor centres of the heart, whose contractions are arrested. Soon the peripheral nervous extremities are entirely paralyzed, and voluntary movements become impossible. The muscular substance, however, remains intact.

5th.—The reflex functions of the medulla and the conductivity of the sensory fibres are not altered, sensibility is not involved.

6th.—The cervical portion of the great sympathetic is, probably, in a state of excitation.

7th.—Aconitine rapidly lowers the temperature of the body and the sanguineous pressure.

8th.—No cerebral disturbance has been recognized.

9th.—There is no local effect upon the pupil.

10th.—Applied upon the skin, aconitine does not traverse it, but remains inactive. Upon mucous surfaces it acts as a local irritant.

In a therapeutic point of view the author makes the following remarks :

1st.—Aconitine is not absorbed by the skin.

2d.—Its employment as a sedative agent is useless.

3d.—There can be no reason for employing it as a diuretic or a diaphoretic.

4th.—It may be employed internally in all morbid conditions, in which diminution of the temperature of the body, of the activity of the heart, or of sanguineous pressure, is indicated; as in simple or consecutive hypertrophy of the heart, in cerebral hyperæmias, in apoplexy, and generally in all hæmorrhages. Another indication for its employment is found in all the cases in which there is exaggeration of the action of the involuntary muscles, convulsions, tetanus, eclampsia.

LOOT.

The one hundred thousand destitute children of London are quaintly, and not inappropriately, designated by a cotemporary, *crime seed*.

Pepsine.

The *Chemical News* makes a statement in reference to this product, which contains a valuable suggestion to Western manufacturers, viz.: That the strongest pepsine is obtained from young pigs, which, after having been kept hungry, and then having the gastric secretion excited by savory food, are pithed. The above suggests a means of obviating the greatest objection to the extended use of this article, viz., its high price.

Pigeons and Opium.

Dr. S. W. Mitchell (*Am. Jour. Med. Sciences*) having administered this drug to pigeons, in various forms and in quantities gradually increased to the enormous amount of twenty-six grains, has demonstrated their almost entire unsusceptibility to its influence.

Dr. Salisbury, of Cleveland, Ohio (*St. Louis Med. Reporter*), in pursuit of his investigations into the realm of the infinitesimal, has discovered a new cause for admiration at the wisdom of Moses in his prohibitory regulations against the hog, viz.: That we are indebted to that useful (?) animal for another boon in addition to Trichina, Tapeworm, etc. The Steatozoon Folliculorum, which the Doctor asserts has its original and natural habitation in the skin and surface adipose of the hog, and is then transmitted to the follicle of the "human face divine."

Holt's Operation for Stricture.

The Medical Press and Circular reports a case of death following this operation, attributed to systemic infection, the corpus cavernosum having been lacerated, and containing pus.

Medicated Pessaries.

Dr. Meadows has proposed to the London Obstetrical Society the substitution of soft soap made into mass with powdered althea, starch or beeswax, for the cocoa butter usually employed in the formation of medicated pessaries. The advantages claimed being greater cleanliness and certainty in action.

The inability of the vagina to absorb fat, occasioning a probable loss of the medicinal ingredients, which being protected by a covering of fat, are passed away without being absorbed.

Syr. Ferri Iodid.

A writer in the *London Pharmaceutical Journal* states that he has in his possession a bottle of Syr. Ferri Iodid., which has been made more than twelve months; it is simply corked, and has been frequently exposed to the air. During the last six months the bottle has been kept only half-full, and the syrup is still in perfect preservation. The method

adopted to secure this result is the simplest conceivable; it consists in exposing the syrup to sunlight for half an hour daily.

Styptic Paper.

It is well known that the perchloride, or as it is sometimes called, the muriate of iron, possesses styptic or hæmostatic properties in a high degree. To obviate the inconvenience of carrying it about in solution, and also of applying it, M. Gustave Gabillon, of Paris, has devised a "styptic paper," the method of preparing which is as follows:

In a vessel carefully tinned inside, he keeps boiling for four hours (skimming from time to time, and adding water to supply that evaporated) a solution of one pound of gum benzoin, one pound of rock alum and four and a third gallons of water. As soon as the solution is cooled it is to be filtered and the paper or tissue to be dipped into it, kept there until saturated, and then carefully dried, after which a solution of the perchloride, more or less concentrated, is applied with a brush or a roller. The paper or tissue thus prepared may be preserved for any length of time in a state always ready for use, by excluding it from air.—*Druggist Circular and Chemical Gazette.*

Gonorrhœa.

Dr. C. P. Judkins reports to the Cincinnati *Lancet*, three cases of gonorrhœa, aborted after the lapse of one week, in each case, by large doses (one-half to three-quarters of a drachm) of pure copaiba, from three to four times daily, before meals. One of the cases was complicated with cystitis. The Doctor objects to the use of injections *in toto*, as applied to this disease, asserting that the inflammation is perpetuated by the irritation of the syringe.

Chlorea.

Dr. Willis (Guy's Hospital), discussing this disease doubts that this malady is due to any special disease of the nervous system, but rather like epilepsy, to a disturbance of the whole of the centres; that a weakened condition of the nervous centres being at the root of the malady good nourishment and tonics are indicated, and that medicines having a physiological action upon the nervous system have far less efficacy in controlling this disease than the metallic tonics.—*Boston Med. and Surg. Journal.*

Poisonous Red Dyes.

M. Tardieu reports two cases of cutaneous disease occasioned by red dye in stockings. This dye, when extracted by a skillful chemist, by means of boiling water and alcohol, was injected under the skin of a frog, a rabbit and a dog. These animals all died after periods of four, thirty-six and forty-eight hours respectively, exhibiting the following post mortem appearances: violent inflammation, and purulent infiltration of the cellular tissue at the point of injection; intestines inflamed and distended with liquid fæces, liver involved in fatty degeneration, and lungs uniformly tinted with coloring matter. This substance was extracted from the lungs and livers of these animals and used to dye a skein of silk.

M. Tardieu compares the action of this dye (coralline) to that of croton oil.—*Boston Med. and Surg. Journal.*

Antidote for Strichnia.

J. Dabney Palmer, in a communication to the *Am. Jour. of Pharmacy*, reports the poisoning of four cats by means of strychnia; to two of them the alkaloid was administered on pieces of beef; both died. To the other two it was given on small tufts of valerian, without the least effect. He asks, "Is valerian an antidote for strychnia?"

Tendo Achillis.

M. Delore, of la Charité Hospital, Lyons, reports to the *Bulletin de Thérapie* the case of a boy, nine years of age, who had severed his tendo achillis with a hatchet. Twelve days after the accident the tendon was exposed, and certain adhesions having been separated, the cut edges were pared and coaptated by four metallic sutures. No traction was permitted upon the sutures, which was prevented by position of the leg. Union had not yet taken place after the lapse of from ten to fourteen days; when the sutures were removed. No separation had occurred; the starch bandage was retained until the fifty-second day. Mobility of the limb, impaired by long confinement, was completely restored in six weeks, at which time perfect use of limb was recovered.—*Boston Med. and Surg. Journal.*

Dr. Samuel J. Jones, late Surgeon in the U. S. Navy, has been appointed Oculist and Aurist to St. Luke's Hospital.